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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/651,040

08/29/2003

Toshiaki Anzaki

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8522

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10/05/2006

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EXAMINER

WATKINS III, WILLIAM P

ART UNIT

PAPER NUMBER

1772

DATE MAILED: 10/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/651,040

Applicant(s)

ANZAKI ET AL.

Examiner

William P. Watkins III

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1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 and 32-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 and 32-36 is/are rejected.
- 7) ☒ Claim(s) 37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 25 July 2006 has been entered.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 28-30 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Schneemeyer et al. (U.S. 5,912,797).

See col. 6, lines 15-35 which discloses a composite target of zirconium and tin for a sputter gun with 20% tin. The instant specification at Embodiments 7 and 8; page 12 disclose

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targets with tin and zirconium compositions. The target of Schneemeyer et al. is taken as having a similar performance since it has a similar composition to that which enables the instant specification. As a matter of claim construction the examiner takes the phrase "wherein a main material of the zirconium target containing the metal is a least of one metallic zirconium" in instant claim 28, as a target where metallic zirconium is more than a trace component. The atomic 20% zirconium in the target of the reference is taken as meeting this limitation.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schneemeyer et al. (U.S. 5,912,797).

Schneemeyer et al. teaches at col. 6, lines 65-69 using a small amount of magnesium or calcium in the target in order to

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compensate for oxygen traps. The instant invention claims a target with a third metal that may be magnesium or calcium. It would have been obvious to one of ordinary skill in the art to include a small amount of magnesium or calcium in the target of Schneemeyer et al. in order to compensate for oxygen traps because of the teachings of Schneemeyer et al.

6. Claims 28-30, 32 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartig et al. (U.S. 5,403,458).

Hartig et al. discloses making a target that deposits nonconductive films with a conductive dopant such as indium or tin in an amount less than 50%, in order to enhance the speed of deposition by limiting anode reconditioning (abstract, col. 7, line 10-25, col. 8, lines 1-15). Zirconium oxide maybe such a nonconductive film (col. 6, lines 40-45). Oxides may be sputtered themselves or the base metal may be sputtered in an oxygen reactive environment to deposit the oxide (col. 6, lines 30-35 and col. 5, lines 25-30). The instant invention claims a metal in a zirconium target that enhances the rate of deposition. It would have been obvious to one of ordinary skill of the art to have selected zirconium oxide from the listed possible deposited films and have used reactive zirconium metal

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in the target along with an indium or tin dopant in order to allow deposition of both conductive and nonconductive oxides because of the teachings of Hartig et al. These dopants are taught in the instant specification as increasing the rate of deposition (see Table 1). As the target taught above by Hartig et al. is taken as being mostly of zirconium metal it is taken as meeting the numerical range of claim 36.

7. Claims 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartig et al. (U.S. 5,403,458) as applied to claims 28-30 and 32 above, and further in view of Finley (U.S. 6,677,063).

Finley teaches deposition of a zirconium oxide film using a zirconium target that may have dopants such as magnesium, yttrium and calcium (col. 8, lines 25-38). The instant invention claims a zirconium target with a third metal. It would have been obvious to one of ordinary skill in the art to have used a calcium, magnesium or yttrium dopant in the deposited zirconium oxide film of Hartig et al. in order to stabilize or otherwise be deposited with the zirconium oxide film because of the teachings of Finley.

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8. Claim 37 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Neither Hartig et al. nor Schneemeyer et al. teach a target with the claimed molar composition range of zirconium carbide and tin.

9. Applicant's arguments filed 26 July 2006 have been fully considered but they are not persuasive.

Applicant argues that the new language of "a major component of the sputtering target is zirconium" is in compliance with the examiner's suggestion during the interview held 14 June 2006 and defines over Schneemeyer et al. The interview summary calls for "the major component of the sputtering target is zirconium" not "a major component of the sputtering target is zirconium". The new limitation is not any more narrow than the previous claim language. The rejections using Schneemeyer et al. are therefore maintained. No new arguments have been presented regarding the rejections using Hartig et al. The rejections using Hartig et al. are also therefore maintained.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William P. Watkins III whose telephone number is 571-272-1503. The examiner works an increased flex time schedule, but can normally be reached Monday through Friday, 11:30 A.M. through 8:00 P.M. Eastern Time. The examiner returns all calls within one business day unless an extended absence is noted on his voice mail greeting.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



WW/ww

September 29, 2006

**WILLIAM P. WATKINS III
PRIMARY EXAMINER**